Theoretical Computer Science 2011 vol.412 N18, pages 1669-1685

Splitting and nonsplitting in the Σ2 0 enumeration degrees

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Abstract

This paper continues the project, initiated in (Arslanov, Cooper and Kalimullin 2003) [3], of describing general conditions under which relative splittings are derivable in the local structure of the enumeration degrees, for which the Ershov hierarchy provides an informative setting. The main results below include a proof that any high total e-degree below 0e′ is splittable over any low e-degree below it, a non-cupping result in the high enumeration degrees which occurs at a low level of the Ershov hierarchy, and a Combining long solidus overlay‴-priority construction of a Π10e-degree unsplittable over a 3-c.e. e-degree below it.

http://dx.doi.org/10.1016/j.tcs.2010.12.042

Keywords

Computability, Enumeration reducibility, Ershov hierarchy, Splitting and nonsplitting